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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,891	11/13/2003	Yun-Ho Jung	053785-5160	6104

30827 7590 07/28/2006

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EXAMINER

ROSASCO, STEPHEN D

ART UNIT PAPER NUMBER

1756

DATE MAILED: 07/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/705,891

Applicant(s)

JUNG, YUN-HO

Examiner

Stephen Rosasco

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 23-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### Detailed Action

In response to the Amendment of 5/2/06, wherein the claims were amended to include the limitation that the reflecting layer "has a refractive index and a thickness such that the reflective layer" totally reflects the laser beam, the examiner withdraws the prior office action rejections and includes new rejections here.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-4 and 12, 14 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Iwamatsu et al. (5,609,977).

Iwamatsu et al. teach a reflection phase shifting mask comprising: a substrate for reflecting exposure light, and a phase shifting layer, wherein the thickness and refractive index of said phase shifting layer are set such that light reflected by said phase shifting layer has substantially the same phase as that of light which is transmitted through said phase shifting layer, reflected by said substrate, and output from said phase shifting layer.

Iwamatsu et al. also teach that the mask blank is to be used together with a KrF laser beam as exposure light can also be manufactured by the same method except that the composition ratio of oxygen is changed.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doany et al. (5,387,484) in view of Iwamatsu (5,609,977).

The claimed invention is directed to a laser beam mask for shaping a laser beam, comprising: a base substrate having first and second surfaces; and a reflecting layer on the first surface of the base substrate, wherein the reflecting layer has a refractive index and a thickness such that the reflective layer totally reflects the laser beam.

And wherein the laser beam is transmitted from the base substrate to the reflecting layer.

Doany et al. teach a mask and a fabrication method therefor that incorporates a patterned radiation blocking layer such as a second patterned high-reflectivity dielectric coating on the back surface of the mask which also includes a first patterned reflective coating on the front. This second high-reflective dielectric coating referred to as a premask, eliminates most of the laser energy directed onto the mask that leads only to substrate heating without effecting the laser energy transmitted through the open area of the mask.

Iwamatsu et al. teach a reflection phase shifting mask comprising: a substrate for reflecting exposure light, and a phase shifting layer, wherein the thickness and refractive index of said phase shifting layer are set such that light reflected by said phase shifting layer has substantially the same phase as that of light which is transmitted through said phase shifting layer, reflected by said substrate, and output from said phase shifting layer.

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The teachings of Doany et al. differ from those of the applicant in that the applicant teaches adjusting the refractive index and thickness such that the reflecting layer totally reflects the laser beam.

Iwamatsu is included here as discussed above.

It would have been obvious to one having ordinary skill in the art to take the teachings of Doany et al. and combine them with the teachings of Iwamatsu in order to make the claimed invention because it would be obvious to make the reflecting layer totally reflecting based on the teachings of Iwamatsu for adjusting the index of refraction and thickness to give the desired result.

Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Stephen Rosasco whose telephone number is (571) 272-1389. The Examiner can normally be reached Monday-Friday, from 8:00 AM to 4:30 PM. The Examiner's supervisor, Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



S. Rosasco  
Primary Examiner  
Art Unit 1756

S. Rosasco  
7/18/06